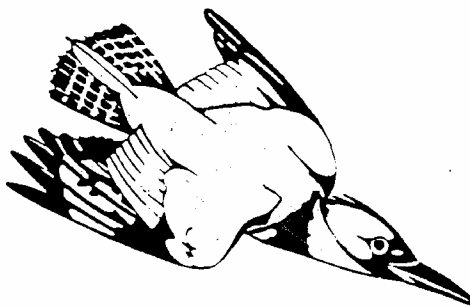




Kingfisher Project

The need to inspire in our youth a sense of community and a future vision has never been greater. We must develop creative approaches to education if we are to adequately prepare the next generation of decision makers to work together to improve the quality of life. A renewed interest by young people in taking action to protect and conserve our state's natural resources offers a springboard for integrating education and community service. The purpose of the Kingfisher Project is to reconnect youth with their environment and reestablish the relationship between education and the natural world.



Kingfisher Project Report 1994 - 1996

**Submitted to Indiana Department of Natural Resources T by 2000
Lake and River Enhancement Program**

Prepared by Friends of White River, Karl Glander, Executive Director

July 31, 1996

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The Kingfisher Project is a middle school education initiative. Friends of the White River worked with partners to develop the project in order to help young people understand the value of the White River. The purpose of the Kingfisher Project is to reconnect the youth of Marion County, Indiana, with their environment and reestablish the relationship between education and the "real world". Kingfisher activities center around water quality monitoring and understanding the ecology of the White River watershed. Math science and environmental studies are covered in classroom and field activities related to water quality monitoring. Research and lab tests are augmented with field work to provide an holistic education experience.

Friends of the White River (FOWR) recruited schools throughout Marion County to participate in the Kingfisher Project. Over 30 schools were provided with curriculum materials, Hach Surface Waters Test Kits, biological sampling equipment, maps, books, videos and technical assistance as part of the project. More than 50 FOWR members and project partner volunteers were mentors for these schools. Workshops were held to familiarize teachers and mentors with water quality topics, monitoring techniques, and the White River watershed. Schools designated locations along local streams as field test sites. School groups gathered baseline data on the quality of many of the White River's tributaries. Field tests were conducted in spring and fall and a database was developed for storing and sharing water quality data collected by each school.

Teachers used the training and materials to integrate water quality topics and testing into their curriculum during the school year. A Kingfisher Project Resource Center was established at the Marion County Soil and Water Conservation District Office (SWCD). Maps, books, test equipment, and other resources are made available to teachers and mentors at the resource center.

This report includes monitoring data supplied by participating schools. It also provides specific information about project partners, training workshops, field notes, photos, etc. The report highlights the success of the Kingfisher Project and plans for expansion of the project beyond the boundaries of Marion County.

P articipation

Project Partners

Friends of the White River (FOWR) is the major sponsor of the Kingfisher Project. Project partners include the Marion County SWCD, Indianapolis Rotary, Indianapolis Flycasters, Indiana Department of Natural Resources - T by 2000 Lake and River Enhancement Project, and the Indiana Department of Environmental Management. FOWR is a 350 member not-for-profit volunteer organization, formed in 1985 to preserve and protect Indiana's White River and its tributaries. Karl Glander, Executive Director of FOWR, also directs the Kingfisher Project. Dawn Kroh is the Kingfisher Project Manager, responsible for ongoing implementation of the project. FOWR plans to continue to promote the Kingfisher Project and engage the youth of Marion County in river stewardship initiatives.

Marion County Soil and Water Conservation District (SWCD) has contributed greatly to the success of the Kingfisher Project. Greg Gerke, Marion County SWCD Education Specialist, is the Communication Coordinator for the project. He provides on site assistance during field days, administers the resource center, coordinates project mailings and helps manage project workshops. Marion County SWCD has also contributed technical support on a wide range of Kingfisher Project initiatives.

Indianapolis Rotary has proven to be a strong partner with financial contributions and project volunteers. Dave Damin has organized the efforts of Rotary's Environmental Committee in support of the project. Rotary's Adopt-A-Stream Project was merged with the Kingfisher Project to take advantage of the similarities between the two efforts. Rotary has also contributed money to help fully outfit participating schools with field gear and classroom materials. Rotary will continue to work closely with FOWR as the Kingfisher Project grows.

Indianapolis Flycasters have provided much needed support as Kingfisher Mentors. Members of the Flycasters are fly-fishermen knowledgeable about aquatic insects, fish habitat, and general river characteristics. Mentors assisted several schools on field days and at project workshops. Ongoing volunteerism will ensure that strong role models are always provided as part of this unique approach toward education.

The Indiana Department of Natural Resources T by 2000 Lake and River Enhancement Program provided FOWR with a \$20,000 in the fall of 1994. This grant was the major financial support for the Kingfisher Project through the summer of 1996. Technical assistance with project workshops and program management was provided by Gwen White and other IDNR Division of Soil Conservation staff. Gwen is the Lake and River Enhancement Coordinator and has provided invaluable technical assistance and support for the project.

Indiana Department of Environmental Management (IDEM) was the first regulatory agency to become involved in long term planning for the Kingfisher Project. The support of former IDEM Water Quality Standards Branch Chief, John Winters, enabled the Kingfisher Project to rely on IDEM field biologists and water quality staff for assistance with workshops and the development of instructional materials. Amy Rayl, IDEM's Volunteer Coordinator, has taken the lead in coordinating workshops and scheduling ongoing meetings between project partners. IDEM's continued involvement with the Kingfisher project will provide ongoing quality control for training and data collection as the project expands.



Participating Schools

The Kingfisher Project was targeted at middle school students and teachers with an original goal of recruiting at least one school from each township in Marion County (9 total). As of July 31, 1996 there were 32 schools participating in the Kingfisher Project. Training sessions have been open to the public and therefore several high schools, elementary schools, and private schools also participate in the project. Middle schools were selected for a variety of reasons. Middle schools generally offer teachers more opportunities for team teaching. They also have a flexible schedule allowing for longer, more frequent field trips. And, most importantly, middle school students are eager to engage in experiential education. The following schools are currently participating in the Kingfisher Project. A map showing the locations of these schools' test sites is included on Figure 1.

- | | |
|---------------------------------------|-------------------------------------|
| 1. Decatur Middle School | 18. IPS #87 |
| 2. John Marshall Middle School | 19. Fall Creek Valley Middle School |
| 3. Craig Middle School | 20. Decatur Central High School |
| 4. Crispus Attucks Middle School | 21. North Central High School |
| 5. George Buck Middle School #94 | 22. Manual High School |
| 6. Westlane Middle School | 23. Warren Central High School/ |
| 7. Raymond Park Middle School | 24. Arlington High School |
| 8. Northview Middle School | 25. Pike High School |
| 9. New Augusta Academy | 26. Arsenal Technical High School |
| 10. Beech Grove Middle School | 27. Brebeuf High School |
| 11. Harshman Middle School #101 | 28. Fulton Jr. High School |
| 12. Franklin Township Middle School | 29. Capitol City Church School |
| 13. Southport Middle School | 30. Lawrence North High School |
| 15. Moorhead Elementary/Middle School | 31. Guion Creek Middle School |
| 16. Grassy Creek Elementary School | 32. Crooked Creek Elementary School |
| 17. Park Tudor School | |

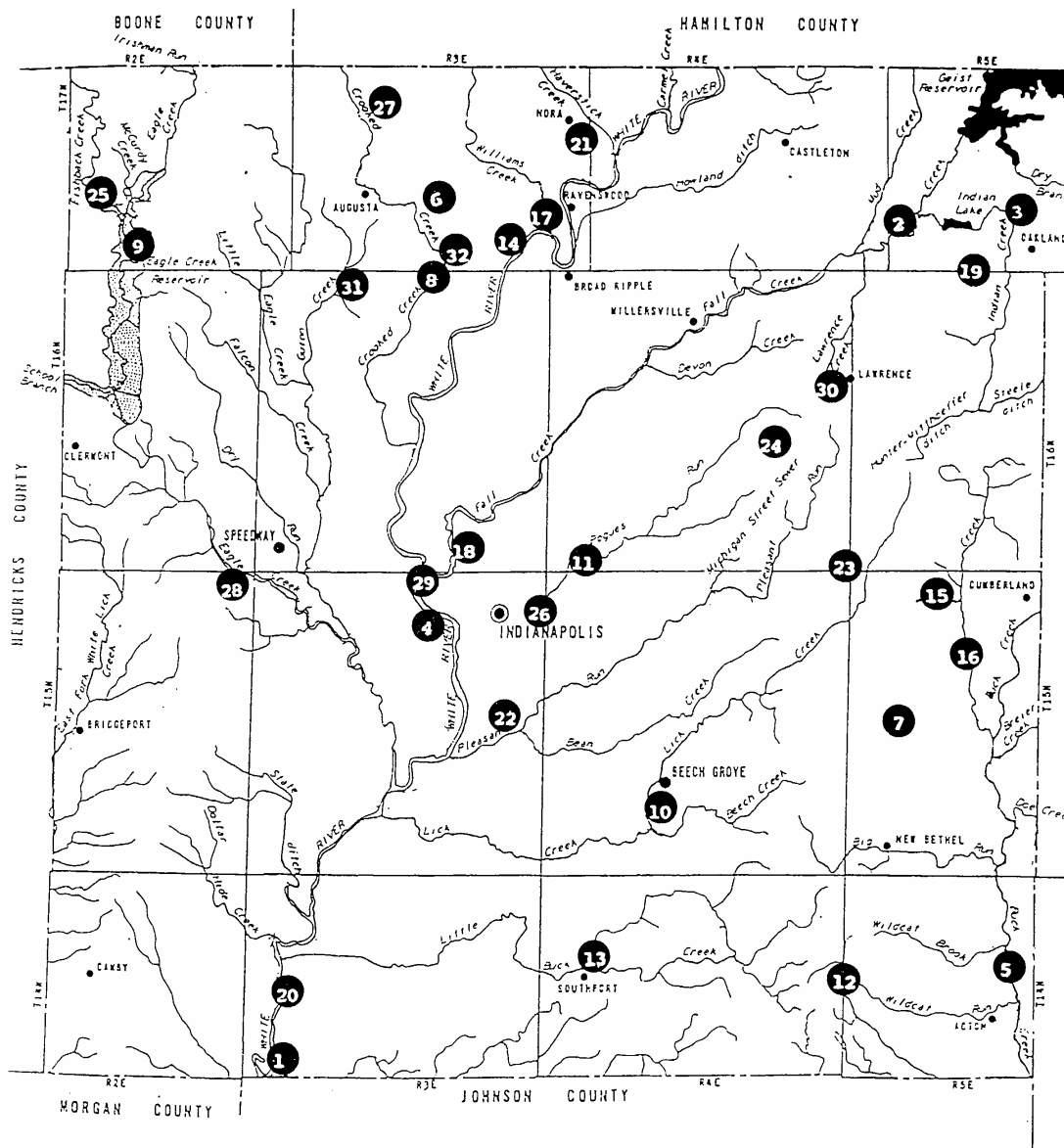


Figure 1. Map of test sites identified by school number

MARION COUNTY

KINGFISHER PROJECT AT CRAIG MIDDLE SCHOOL

Craig Middle School in MSD Lawrence has been involved in the Kingfisher project since 1994. The first year one team of approximately 125 eighth grade students and their science teacher Mrs. Sendmeyer were involved. Students already knew a test for dissolved oxygen and carbon dioxide through their regular chemistry curriculum, and we performed those tests as well as temperature and biological monitoring on Indian Creek which flows behind the school. Now three hundred and fifty eighth grade students and three teachers, Mrs. Sendmeyer, Mrs. Anderson, and Mr. Walters are involved in the monitoring, and thanks to the Friends of the White River and specifically the Kingfisher Project, we are able to participate in a much more scientific and meaningful way.

Since eighth grade science at Craig is chemistry based, the tie in with chemical monitoring was quite evident, and by spring our students are proficient at measuring both dry and liquid chemicals, performing quantitative and qualitative tests, and interpreting results. We first teach the various water quality tests in class using tap water and then use stream monitoring as one rotation on "Survival Day," an interdisciplinary unit involving math, social studies, health/PE, science and English classes. Although the outdoor portion is a single day, the water quality preparation and culmination takes approximately two weeks. Students learn about water pollution and shortages, learn the chemical tests, prepare laboratory reports on their conclusions, and share their data with other classes and schools via the server at Orchard.

The Hach kits, nets, equipment, reference materials, training, and technical support given to us by the Kingfisher Project has been marvelous. Our students get to use professional grade equipment like Hach kits and the Hydrolab, participate with genuine ecologists in biological monitoring of our stream, and interact with concerned adults in various professions who demonstrate stewardship for the environment.

Figure 2. Description of Kingfisher Project at Craig Middle School

Written by Carole Sendmeyer, Kingfisher Project Teacher

Mentors

One of the key elements of the Kingfisher Project is the involvement of volunteers. Kingfisher volunteers are referred to as mentors. This more accurately reflects the role they play in working with young people. Mentors give teachers and students a helping hand, in the class and along the riverbanks. Often they take part in water quality monitoring outings helping the students evaluate the health of the stream they are visiting. Mentors' involvement gives students a chance to interact with adults who are committed to river stewardship. The mentors, in return have an opportunity to discuss important river conservation issues with young people.

Forty-seven mentors are currently active with the Kingfisher Project. These volunteers represent all of the project partners - Rotary, FOWR, Flycasters, IDNR and IDEM. They contribute their efforts to assist at workshops and field days. Mentors from FOWR and Indianapolis Flycasters are in the process of forming their own monitoring network. They will continue to assist schools as needed but will also begin to collect water quality data at several other test sites on the White River and its tributaries. The list of mentors continues to grow and their contributions have helped the Kingfisher Project succeed.



Mentor Tom Quill works with Southport Middle School students.

Workshops

Workshop Format

Three training workshops have been presented during the past 24 months. Over 50 people participated in each workshop. Workshops are the major method of training Kingfisher teachers and mentors. Topics covered during the day-long workshops included; watersheds, map reading, habitat assessment, chemical water quality tests, biological stream sampling, and other topics related to the project. A sample workshop flyer and agenda (see Figure 3 & 4) provide an overview of a typical workshop. The workshop includes a field session to prepare participants to conduct water quality assessments.

Many resource materials are provided as part of the workshop. Each attendee receives a copy of Mitchell and Stapp's, *Field Manual for Water Quality Monitoring*. This book is the primary reference for the Kingfisher Project. Additional newsletters, sample forms, reference maps, and other water quality literature is also handed out at each workshop.

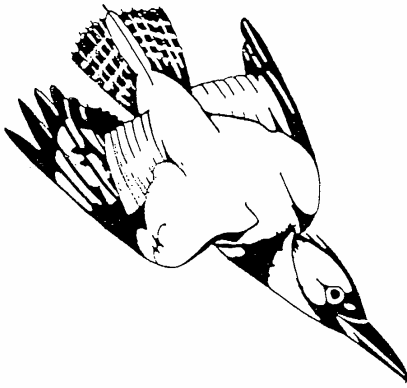
Figure 3. Typical workshop announcement

Announcing the 3rd

Water Quality Monitoring Workshop!

presented by:

Friends of White River
Indiana Dept. of Environmental Management
Indiana Dept. of Natural Resources
Marion County Soil & Water Conservation Dist.
Indianapolis Rotary Club
Indianapolis Flycasters



The Water Quality Monitoring Workshop is open to educators and anyone else interested in learning about water quality and volunteer monitoring. The workshop is free and will be held on **October 19th** at Orchard Country Day School (see map) in Indianapolis.

Registration will begin at 8:30 a.m. with the final session scheduled to end at 2:30 p.m. Hands-on indoor activities will be held in the morning followed by outdoor field sessions after lunch. Training materials and equipment will be provided. Participants should bring shoes and clothing suitable for wet conditions. Participants should also bring their own lunch.

If you are interested in attending, please complete the registration form provided below and return to: Greg Gerke, Marion County Soil and Water Conservation District, 6960 S. Gray Road, Suite C, Indianapolis, Indiana 46237. Call 780-1765 or 299-6714 for more information. Registration forms can be faxed to the SWCD office at 780-7849.

Orchard Country Day School - October 19, 1996

Registration Form Water Quality Monitoring Workshop

Name _____ Phone _____ Fax _____

Address _____

School (if applicable) _____

Voluntary contribution to help cover the cost of the workshop enclosed: ____\$5 ____\$10 \$ ____other
Please make contributions to Friends of White River not Marion Co. SWCD.

Figure 4. Standard workshop agenda.

**Volunteer Water Quality Monitoring Workshop
Proposed Agenda**

9:00 - 9:30 Registration (Basic and Advanced)
9:30 - 9:45 Introduction to Program
9:45 - 10:00 Mentors/Fundraising - Resources/Communication (Dave Damin/Tom Quill)

Basic

Advanced

Begin 20 minute rotations with 5 minutes between sessions

10:00 - 10:20	Physical Characteristics (Gwen White) (Turbidity, Habitat Assessment)	Watershed Mapping and Physical Measurements (Dawn Kroh, Greg Gerke)
10:25 - 10:45	Chemical Monitoring (Judy Faatz)	Chemical Monitoring (Steve Hall, Amy Rayl)
10:50 - 11:10	Fecal Coliform (Diana Zamani-Indiana Department of Health)	Biological Monitoring (Greg Gerke)
11:15 - 11:35	Biological Monitoring (Ronda Dufour)	Fecal Coliform (Diana Zamani)

Both groups will be assembled for the following presentation:

11:40 - 12:10 Computer Networking (Mark Kiesling)

12:15 - 1:00 BROWN BAG LUNCH

Begin field rotations with 5 minutes between sessions

1:00 - 1:30	Physical Monitoring (Gwen White) (Turbidity, Habitat Assessment)	Physical Measurements, Safety, and Access (Dawn Kroh)
1:35 - 2:05	Chemical Monitoring (Karen McCarty)	Chemical Monitoring and Hydrolab Demonstration (Steve Hall, Amy Rayl and Rick Fielder)
2:10 - 2:40	Biological Monitoring (Ronda Dufour)	Biological Monitoring (Greg Gerke)
2:45 - 3:00	Children's Museum of Indianapolis Presentation	
3:00- 3:15	Question/Answer Period	
3:15 - 3:30	Presentation of Certificates and Closing Remarks	

Resource Center

A Kingfisher Project Resource Center has been established at the Marion County Soil and Water Conservation Office in Indianapolis. Equipment and supplies are stored at the resource center. The office also serves as a distribution site for teachers to pick-up and return water quality monitoring supplies, books, maps, curriculum guides, and biological sampling equipment. Hach test kits are available for loan to schools and other interested groups and individuals through the resource center. The SWCD office also serves as a clearinghouse for information and regular mailings. Kingfisher project participants are regularly updated on upcoming workshops and other environmental education opportunities. The resource center is a conduit for water quality information available to teachers and mentors alike. Providing ample resources helps ensure young people will receive a high quality learning experience.

A Hydrolab was donated to FOWR in 1995. The Hydrolab is a sophisticated multi-purpose water quality testing apparatus. It is a sophisticated piece of equipment suitable for obtaining professional level water quality readings. It is used at school demonstrations, workshops and field tests. It is stored at the resource center and is available for use by project participants.

R

eporting

Types of Data Collected

The schools' study sites serve as anchor points for the White River monitoring network. Physical, chemical, and biological monitoring is conducted at these sites to assess the condition of each stream. Students research their monitoring site, collect data and share their results with other students.

Habitat assessments are requested for each test site. Identifying the condition of the riparian corridor and the visual quality of the water is an important part of the monitoring process. The habitat assessment provides a context for both the biological and chemical test results. Kingfisher teachers are trained to calculate velocity and discharge rates along with turbidity measurements. Each school is encouraged to map the watershed of their stream site, however additional training is still needed on this topic.

Chemical tests are conducted using Hach Surface Waters Test Kits. Kits contains sampling equipment for standard water quality tests; temperature, pH, dissolved oxygen, BOD, nitrates, phosphorous, and total solids. Hach equipment corresponds with the step-by-step instructions included in the Mitchell and Stapp field guide. Training on the use of the tests kits is provided during Kingfisher Project workshops. Schools are also trained to measure turbidity and conduct fecal coliform tests and have equipment for this purpose. Teachers are encouraged to begin their monitoring programs conducting pH, temperature, dissolved oxygen and BOD tests. They phase in the other tests they become more familiar with standard test procedures.

Biological samples are also collected at the stream site with a focus on identifying aquatic insects and their levels of pollution tolerance. Kick seine nets and D-frame nets are used to obtain in-stream samples. Samples are sorted and counted for purposes of analysis. The Sequential Comparison Index and the Pollution Tolerance Index are used to obtain a stream health rating. Ratings are based on the abundance and diversity of aquatic insects and other macroinvertebrates.

Standard forms for recording water quality data have been developed as part of this project. The forms have been approved by IDEM and are accepted as the state standard for recording volunteer water quality monitoring findings. The standard packet of report forms and instructions is approximately 30 pages long. A copy of the packet can be obtained by contacting Jason Bowling, River Watch Coordinator for IDNR.



Spring workshop field activities on Fall Creek at Fort Benjamin Harrison

Information Hub

One of the goals of the Kingfisher Project was to establish an electronic information hub. The hub is located at Orchard Country Day School, a participating school. Mark Kiesling is the technology coordinator for the school and an ad hoc computer coordinator for the Kingfisher Project. A database has also been developed to store Kingfisher data. Schools are provided with computer training and access protocols to allow them to store and retrieve their data. The database has been designed to allow students to review the findings of other schools' monitoring efforts. The system includes bulletin board and chat room features as part of the larger Environmental Network administered by Orchard Country Dayschool.

The Kingfisher Project database has been revised several times over the past 24 months. Rapid advances in technology and easier access to the Internet have resulted in a more accessible system than originally envisioned. Database refinements will continue as the project expands. Work is also underway to develop World Wide Web home pages for many of the project partners and these will include information about the Kingfisher Project.

Computer training has been included in all project workshops. Familiarizing teachers and mentors on how to access the database and how to enter data remains a challenge. Additional training sessions will be held on this topic to encourage as many participants as possible to use the database and network with each other.

Monitoring Reports

Monitoring reports have been submitted by the schools involved in the project. These reports provide an overview of the water quality throughout the watershed. Monitoring reports contain results of field tests and habitat information. The following reports contain data from tests conducted during the spring of 1996. Additional data for previous and subsequent testing is available through the Kingfisher Database at Orchard Country Dayschool. Contact Mark Kiesling, Technology Coordinator, if you would like access to the database.

Several schools submitted poetry, photographs, drawings, reports and other work done in conjunction with the stream testing activities. This information is not included in this report but will be used as part of a traveling display about the project and the project partners.

Collecting data reports has proven to be one of the most difficult aspects of the project. Often photographs are taken but the data report forms are not completed during field day. There is a great need for more training on reporting and data management. Reporting will continue to be a major focus of Kingfisher Project workshops. An ongoing goal for the project will be to improve the quantity of verifiable stream data collected during field sessions.

Report Summary **Date: 7/20/96**

School #: 7	Date: 5/3/96
School Name: Raymond Park Middle School	Time: 10:00 am
Teacher / Mentor: Steve Haas	County: Marion
Weather:	Phone #:
Name of Stream: Buck Creek	
Location: Southeastway Park	

Chemical Tests

DO: 23 ppm	Total Phosphate: 0 mg/l
Fecal Coliform:	Nitrates: 0 mg/l
pH: 7.6	Turbidity: 5 in.
BOD:	Total Solids:
Temperature: 60 F	Other:
Water Quality Index:	

Biological Sampling

Type of Sample: kick seine
Index: PTI 15
Water Quality Rating: fair
Comments:

Physical Assessment

Habitat Assessment Score: good

Stream depth: 3 ft	Stream width: 45 ft	Stream height: 5 ft
Riparian development: good ds	Channelization: none us/ds	
Bank cover: good us/ds	Cover type: trees, grass, soil ds	
Bank erosion: moderate	Riparian Width: <5m ds	Sinuosity: moderate us/ds
Turbidity: muddy	Pools present: no us, yes ds	
Siltation: normal	Land Use: woods us/ds, rowcrop us/ds	
Kick Samplability: good	Kick Area: riffle, run	

Other Comments

Report Summary Date: 7/20/96

School #: 20

Date: 3/15/96

School Name: Decatur Middle School/High School

Time: 4:15 pm

Teacher / Mentor: Pat Schwomeyer

County: Marion

Weather:

Phone #:

Name of Stream: White River

Location: Southeastway Park @ Marion County line

Chemical Tests

DO:

Total Phosphate:

Fecal Coliform:

Nitrates:

pH: 7.8

Turbidity:

BOD:

Total Solids:

Temperature: 10 C

Other:

Water Quality Index:

Biological Sampling

Type of Sample: Kick Seine

Index: SCI

Water Quality Rating: Good

Comments:

Physical Assessment

Habitat Assessment Score

Stream depth: 1 m

Stream width: 60 m

Stream height: 3 m

Bank cover: Good

Cover type: grass, soil

Bank erosion: Moderate

Other Comments

Report Summary **Date: 7/20/96**

School #: 3**Date:** 5/10/96**School Name:** Craig Middle School**Time:****Teacher / Mentor:** Carole Sendmeyer**County:** Marion**Weather:** Heavy rain, creek at flood stage**Phone #:****Name of Stream:** Indiana Creek**Location:** Behind Craig Middle School

Chemical Tests**DO:** 9.0 ppm**Total Phosphate:** 0 mg/l**Fecal Coliform:****Nitrates:** 0 mg/l**pH:** 7.8**Turbidity:** 9 -12 in.**BOD:****Total Solids:****Temperature:** 15.35 C**Other:** Alkalinity 18 gpg**Water Quality Index:**Hardness 26 gpg

Biological Sampling**Not Conducted:** flood stage

Physical Assessment**Not Conducted:** flood stage

Other Comments

Flood stage after several days of hard rain. Velocity estimated at about 3 ft/sc but unsafe to allow students into water to conduct all tests.

Report Summary **Date: 7/20/96**

School #: 13	Date: 11/8/95
School Name: Southport Middle School	Time: 10:30 am
Teacher / Mentor: Terry McClain	County: Marion
Weather: Clear, cold, last rain 11-6 pm	Phone #:
Name of Stream: Lick Creek	
Location: Longacre in Perry Township	

Chemical Tests

DO: 10 mg/l	Total Phosphate:
Fecal Coliform:	Nitrates: 3 mg/l
pH: 7.7	Turbidity:
BOD:	Total Solids:
Temperature: 40 F	Other: Chlorine - none
Water Quality Index:	

Biological Sampling

Type of Sample: kick seine
Index: PTI 21, SCI 1.0
Water Quality Rating: good, good
Comments:

Physical Assessment

Habitat Assessment Score:

Stream depth: 9 in	Stream width: 23 ft	Stream height:
Riparian development: good ds, fair us	Velocity: 1.43 cf/s	
Bank cover: good us/ds	Cover type: artificial us, grass ds	
Bank erosion: little/none	Riparian Width: <5m ds/us	Sinuosity: mod ds, none us
Turbidity: clear	Pools present: no ds, yes us	
Siltation: normal	Land Use: residential/industrial us/ds	
Kick Samplability: excellent	Kick Area: dam, riffle	

Other Comments

Report Summary **Date: 7/20/96**

School #: 8

Date: 5/17/96

School Name: Northview Middle School

Time: 9:30 a.m.

Teacher / Mentor: Karen Simons Gartner

County: Marion

Weather: Overcast, scattered showers

Phone #:

Name of Stream: Williams Creek

Location: Marrott Park @ 75th and College

Chemical Tests

DO: 81% sat.

Total Phosphate: .46 mg/l

Fecal Coliform: present

Nitrates: 2 mg/l

pH: 7.7 units

Turbidity: 1.1 ft

BOD: 4.7 mg/l

Total Solids:

Temperature: 1 C

Other:

Water Quality Index:

Biological Sampling

Type of Sample: kick seine

Index: PTI

Water Quality Rating: fair

Comments:

Physical Assessment

Not Conducted:

Other Comments

Report Summary **Date: 7/20/96**

School #: 2

Date: 5/11/96

School Name: John Marshall Middle School

Time:

Teacher / Mentor: Alaine Burckhart Allen

County: Marion

Weather: Heavy rain, creek at flood stage

Phone #:

Name of Stream: Fall Creek

Location: Ruster Park

Chemical Tests

DO:

Total Phosphate:

Fecal Coliform: present

Nitrates:

pH:

Turbidity:

BOD:

Total Solids:

Temperature:

Other:

Water Quality Index:

Biological Sampling

Not Conducted: flood stage

Physical Assessment

Not Conducted: flood stage

Other Comments

Fall Creek site at flood stage and dangerous. Buck Creek, alternate site same condition. Samples collected for testing in class. All field activities postponed

Report Summary Date: 7/20/96

School #: 9	Date: 5/30/96
School Name: New Augusta Academy	Time: 10:00 am
Teacher / Mentor: Tony Smarrella	County: Marion
Weather:	Phone #:
Name of Stream: Eagle Creek	
Location: Eagle Creek Park, Pike Township	

Chemical Tests

DO: 11 mg/l	Total Phosphate: <1 mg/l
Fecal Coliform:	Nitrates: 7 mg/l
pH: 6.9 units	Turbidity: 9 in.
BOD:	Total Solids:
Temperature: 66 F	Other:
Water Quality Index:	

Biological Sampling

Type of Sample: kick seine, dip net
Index: PTI 18, SCI .63
Water Quality Rating: good, fair/good
Comments:

Physical Assessment

Habitat Assessment Score:

Stream depth: 3 ft	Stream width: 45 ft	Stream height: 5 ft
Riparian development: good ds/us	Channelization:	
Bank cover: good us/ds	Cover type: trees, grass, shrub us/ds	
Bank erosion: little/none	Riparian Width: >50m ds/us	Sinuosity: low us/ds
Turbidity: muddy	Pools present: no us/ds	
Siltation: moderate	Land Use: woods us/ds	
Kick Samplability: fair	Kick Area: riffle, run	

Other Comments

Report Summary Date: 7/20/96

School #: 11	Date: 5/14/96
School Name: Harshman Middle School	Time: 10:00 am
Teacher / Mentor: Donna Chastang	County: Marion
Weather: overcast	Phone #:
Name of Stream: Pogues Run	
Location: Harshman Middle School, 1501 E. 10th St.	

Chemical Tests

DO: 15 mg/l	Total Phosphate: 1.4 mg/l
Fecal Coliform: E Coli present	Nitrates:
pH: 7.8 units	Turbidity: 9 in.
BOD:	Total Solids:
Temperature: 16 C	Other: Ammonia (NH3) .002
Water Quality Index:	Chlorine (free & total) 0 mg/l

Biological Sampling

Type of Sample: shoreline visual search, rock checks

Index:

Water Quality Rating:

Comments: few aquatic insects found (leach, aquatic worms) indicative of poor water quality

Physical Assessment

Habitat Assessment Score:

Stream depth: .7 ft	Stream width: 10 ft	Stream height: 5 ft
Riparian development: good ds/us		Channelization: recent us
Bank cover: moderate us	Cover type: trees, grass us/ds	
Bank erosion: little/none	Riparian Width:	Sinuosity: moderate us
Turbidity: muddy	Pools present: no us/ds	
Siltation: moderate	Land Use: roads, parking	
Kick Samplability:	Kick Area: riffle, run	

Other Comments

Many tests done in classroom due to high water / floodstage.

S

ummary

Accomplishments

The Kingfisher Project was initiated by FOWR with several target objectives. Most of these objectives have been met and in many cases superseded. The project is considered a success by all of the project partners. A few key accomplishments include:

- A Kingfisher Resource Center is located at the Marion County Soil and Water Conservation District Office. The resource center houses and distributes equipment and references on water quality monitoring.
- An electronic information hub and Kingfisher database have been established. This has improved opportunities for sharing information and opened communication between project teachers and students.
- A monitoring network with 30 designated test sites has been created. Tests are conducted at these sites to track water quality throughout the White River watershed.
- A network of teachers and mentors has been trained to conduct water quality tests and provide information on a variety of water quality issues.
- The project success has been publicized through presentations at the Governor's Conference on the Environment, Great Lakes Park Training Institute, and various other public meetings and events.
- Monitoring equipment, supplies, and teaching aids have been provided to all participating schools.

Kingfisher Future

Natural resource conservation requires a long term commitment if progress is to be realized. Similarly, respect for the environment can only be gained once individuals have had an opportunity to learn about natural systems and experience them first hand. This program provides young people with an opportunity to cultivate, at an early age, an environmental ethic and initiate a long term commitment to natural resource conservation.

This project has shown that students benefit from being immersed in a holistic education experience. FOWR plans to expand the Kingfisher experience to include river trips as an additional way to reinforce the importance of river stewardship. FOWR plans to work with project partners to acquire rafts and host an annual river float for Kingfisher teachers, students and mentors. Rafting the river will give Kingfisher participants a new and important perspective on the dynamics of the river and its watershed. The annual river trip will draw project participants together allowing them to share their views and plans for ongoing water quality education and monitoring.

Future plans for the Kingfisher Project also include expansion of the project throughout the White River watershed beyond the boundaries of Marion County. FOWR has already begun to distribute information and a few test kits to groups and individuals both upstream and downstream of Indianapolis. The Muncie Bureau of Water Quality and several Soil and Water Conservation Districts have already expressed interest in serving as partners in the expansion effort. Additional funds will be raised to support the project and new partners will work with FOWR to bring the Kingfisher Project to other communities within the White River watershed.

